

RAVVIN, V.A.; EN'YAKOVA, P.A.

Reactions of the lungs towards various kinds of coal dust. Bor'ba
s sil. 1:291-300 '53. (MIRA 7:10)

1. Donetskiy institut fiziologii truda.
(LUNGS--DUST DISEASES) (COAL) (MINE DUSTS)

RAVVIN, V.A.

Histogenesis of a silicotic nodule in experimental silicosis. Arkh.
pat. 17 no.1:55-60 Ja-Mr '55. (MLRA 8:10)

1. Iz kafedry gistolotii Stalinskogo meditsinskogo instituta.
(SILICOSIS, experimental,
histogenesis of silicotic nodules)

EXCERPTA MEDICA Sec.17 Vol.4/1 Public Health, etc. Jan58

~~RAVVIN, V. A.~~
237. RAVVIN V. A. Professional anthracosis (Russian text) Gigena 1957, 3
(32—36) Tables I Illus 2

Silicosis is not the only form of pneumoconiosis giving rise to fibrosis of the lungs. In order to prove that the workmen of the coal-mines may suffer from anthracosis as an independent form of fibrosis, the author gives data of X-ray and histological examinations of affected tissue and results of chemical analyses of ashes of lungs. In his opinion the main aetiologic factor for this fibrosis is the coal dust, however he does not deny the aetiological role as well as the mineral admixtures.

Iz Stalinskogo Meditsinskogo inst.

RAVVIN, V.A.

Answer to H.M.Kleinman. Gig. 1 san. 24 no.6:64-65 Ja '59.
(MIRA 12:8)

(LUNGS--DUST DISEASES)

MAVZH, V.A., prof. doktor med. nauk; KHS, M.M., stannik lyubimov.

Prophylaxis for anthraxosis. Ber'da s 311. 1937-200 1/2

(MIRA 18:2)

V. Dneviskiy meditsinskiy institut.

1. RAVIC. A. S.
2. USSR (600)
4. Scarlatina
7. Exercise therapy in scarlet fever (author's abstract)., *Pediatrics*, No.5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

RAVZIN, I.I., kand.med. nauk, laureat Stalinskoy premii

Plastics in medicine. Nauka i zhizn' 25 no.11:28-32 N '58.
(MIRA 11:12)

(Medicine) (Plastics)

VOZNESENSKIY, V.L.; NOSENKO, B.M.; RAVZIN, L.S.; YASKOLKO, V.Ya.

Luminescence of gypsum-base phosphors. Trudy SAGU no.65:23-31 '55.
(MLA 9:5)

(Luminescence) (Phosphors)

RAVZIN, S. V.

USSR/Meteorology - Aerology

Mar 52

"Explorers of the Atmosphere," S.V. Ravzin

"Mushka i Zhizn" Vol XIX, No 3, pp 20, 21

Aerology is practiced by Gen Aerol Obs of Main Survey, Hydrometeorol Service USSR, under guidance of V.G. Kastrov, who with S.S. Gaigerov analyses results of balloon-flight observations performed by P.P. Polosukhin, S.A. Zinov'yev, A.P. Krikun, L.V. Ivanova, A.M. Novoderezhkin, S.I. Semin, and M.M. Kirpichev. V.S. Khakhalin

216021

designed equipment which records on film the velocity and direction of vertical atm motion. Exptl data used in this instrument were supplied by M.Z. Pinus and Ye. K. Verla.

216021

RAWA, Ales, inz.

Survey of some power plants abroad and the trend of their
development. Energetika Cz 12 no.3:138-140 Mr '62.

RAWA, Ales, inz. (Praha)

New sources of electric power. Elektrotechnik 17 no.7:185-
186 J1 '62.

RAWA, Krystyna, mgr inz.

Possibilities of appraising flax fibers in flax shops on the basis of laboratory hackling and carding. Przegl włokien 18 no.11:Suppl:Biul inst przem włok lyk 11 no.5:1-4 N '64.

RAWA, W.

The Modernization of Radom Foundries, p. 106.

PRZEGLAD ODLEWNICTWA. (Stowarzyszenie Techniczne Odlewnikow Polskich)
Krakow, Poland.
Vol. 9, no. 4, April 1959.

Monthly List of East European Accessions Index (EEAI), LC, Vol. 8, No. 11,
November 1959.
Uncl.

RAWCZYNSKA-ENGLERT, Irena

Methods and principles of carimetric investigations. Pol. tygod.
lek. 20 no.29:1099-1101 19 J1 '65.

1. Z Kliniki Hematologii Instytutu Hematologii (Kierownik: prof.
dr. med. Włodzimierz Ławkowicz).

POLAND/Chemical Technology. Chemical Products
and Their Applications. Artificial and
Synthetic Fibers.

H

Abs Jour : Ref Zhur-Khimiya, No 6, 1959, 21763

Author : Rawluk, Bernard

Inst : -

Title : Reprocessing of Chemical Fibers of French
Carding Machines.

Orig.Pub : Techn. włokienn., 1958, 7, No 3, 76-77

Abstract : No abstract.

Card : 1/1

RAWLSKI W.
POLAND / Farm Animals, Bees
"APPROVED FOR RELEASE: Tuesday, August 01, 2000

Q-8

CIA-RDP86-00513R001

Abs Jour: Ref Zhur-Biol., No 2, 1958, 7259

Author : Rawski Wojciech

Inst : Not given

Title : Why Do Bees Raise Thousands of Drones?

Orig Pub: Pszczelarstwo, 1956, 7, No 7, 5-7

Abstract: For many centuries past, colonies of bees have
been nesting in trees, separated from one another
by hundreds, even a thousand, or more, of meters.
Under these conditions, for a queen to meet with
a "foreign" drone, it was necessary for each
colony to raise a large number of drones. It has
been estimated that there should be 5,000 of
them. The saturation of the localities with
drones was inversely proportional to the distance
separating the colonies, approximately inversely

Ca Card 1/3

RAKOWIECKI, T.

RAKOWIECKI, T. Determination of the Real Orbit of the Companion of a Double Visual Star with the help of Three Positions. Poznanskie Towarzystwo przyjaciół nauk. Bulletin, Serie B: sciences mathematiques et naturelles, 1947, no. 8, p. 56-63.

RAJSKI, T.

"The Kubala affair." (To be contd.) p. 37 (Skrzydlate Polska, Vol. 9, no. 2, Feb 53, Warszawa)

"(d) Zolnierz Polski, the new literary and artistic periodical issued by the General Political Office of the Polish Army" p. 38 (Skrzydlate Polska, Vol. 9, no. 2, Feb 53, Warszawa)

SO: Monthly List of East European Accessions, Vol 2 No 9 Library of Congress Sept 53 Uncl

RAWSKI, T.

"The Kubala affair; how Sanacja has built the Polish Air Force" p. 7 (Skrzydlate Polska,
Vol. 9, no. 1, Jan 53, Warszawa)

SO: Monthly List of East European Accessions, Vol 2 No 9 Library of Congress Sept 53 Uncl

RAWSKI, W.

The economic foundations in planning the control of mountain torrents of the Vistula Basin. p. 383.

GOSPODARKA WODNA. (Naczelna Organizacja Techniczna) Warszawa.
Vol. 11, no. 10, Oct. 1954.

SOURCE: East European Accessions List, (EEAL), Library of Congress,
Vol. 5, no. 7, July 1956.

RAWSKI, Z.

Industrial safety and hygiene in the industrial establishments of the
Praga Poludnie sector of Warsaw. Przegl techn 85 no.3:8 19 Ja
'64.

RAWLUK, Jozef, mgr.

Labor productivity in the linen industry according to the 5-year plan.
Przepl techn no.22:5,8 Je '62

RAWLUK, J.

Crucial economic problems of the flax industry. p. 148.

PRZEGLAD WLOKIENNICZY. (Stowaryszenie Inzynierow i Technikow Przemyslu Wlokienniczego Lodz, Poland, Vol. 13, No. 3, Mar. 1959.

Monthly List of East European Accessions (EEAI) LC, Vol. 9, No. 2, Feb. 1959.

Uncl.

RAWLUK, J.

The bast fiber industry. p. 295.

PZEGŁAD WŁOKIENNICZY. (Stowarzyszenie Inżynierów i Techników Przemysłu
Słokienniczego) Lodz, Poland. Vol. 12, no. 5/6, May/June 1958.

Monthly List of East European Accessions (EEAI) LC. Vol. 8, no. 7, July 1959.

Uncl.

RAWSKI, Zenon, mgr

The technician, the first ally of the economist. Przegl techn
no.42:5 21 0 '62.

RAWSKI, Zenon, mgr

Labor hygiene in industrial enterprises in one district of the
city of Warsaw. Przegl techn no.14:3,4 8 Ap '62.

RAWSKI, Z., mgr

The educational center for mechanics-opticians; its difficulties and needs. Przegl techn no.2:15 10 Ja '62.

RAWSKI, Zenon, mgr.

Industrial hygiene in industrial enterprises of one district
of the city of Warsaw. Przegl techn no.14:3-4 Ap '62.

PROCESSING AND PROPERTY INDEX																									
1st AND 2nd EDITIONS													3rd AND 4th EDITIONS												
<i>Ca</i> The emission lines and absorption edges in the <i>I</i> series of barium and calcium. G. Kellstrom and H. H. V. Ray. <i>Arch. Mat., Astron. Fysik</i> 24B, No. 13, 5 pp. (1938).--The wave lengths and σ/R values are detd. for the emission lines and absorption limits in the <i>I</i> series of 56 Ba and 55 Ca. The σ/R values are given for the corresponding energy levels. Victor Hicks <i>13</i>																									
ASAC 11A - DETAILING LITERATURE CLASSIFICATION 11A 11B 11C 11D 11E 11F 11G 11H 11I 11J 11K 11L 11M 11N 11O 11P 11Q 11R 11S 11T 11U 11V 11W 11X 11Y 11Z																									

1ST AND 2ND CODES		3RD AND 4TH CODES	
PROCESSES AND PROPERTIES INDEX			
12 Unification of control and analysis methods for agricultural products in international trade. G. Ray. <i>Compt. rend. intern. tech. chim. ind. agr., Compt. rend. Acad. Sci. Paris</i>, 1960, 251, 147-79(1960); <i>Chem. Zentr.</i> 1960, II, 1350.—Report on standard methods for cheese, wine and grain analysis. M. Hoch			
A10-15A METALLURGICAL LITERATURE CLASSIFICATION			
FROM SYMBOLS		TO SYMBOLS	
100000 HIT ONLY COL		100000 HIT ONLY COL	
100000 HIT ONLY COL		100000 HIT ONLY COL	

ALMAZOV, A.M., doktor geogr. nauk; BONDAR, K.; VAGIN, N.F.;
 GEDERIM, V.; D'YAKONU, K. [Diaconu, C.]; MITSE, P. [Mitse, P.];
 STENESKU, V. [Stanescu, V.]; STENESKU, S. [Stanescu, S.];
 MAYSTRENKO, Yu.G.; MIKHAYLOV, V.N., kand. geogr. nauk;
 NIKIFOROV, Ya.D., kand. tekhn. nauk; RAY, I.A.; RODIONOV,
 N.A.; MINENKO, V.M., red.; ZARKH, I.M., tekhn. red.

[Hydrology of the region of the Danube estuary] Hidrologiia
 ust'evoi oblasti Dunaia. [By] A.M. Almazov i dr. Moskva,
 Gidrometeoizdat (otdelenie), 1963. 382 p. (MIRA 17:1)

1. Gosudarstvennyy okeanograficheskiy institut Glavnogo
 upravleniya gidrometeorologicheskoy sluzhby pri Sovete
 Ministrov SSSR (for Mikhaylov, Nikiforov, Rodionov).
2. Dunayskaya gidrometeorologicheskaya observatoriya Uprav-
 leniya gidrometeorologicheskoy sluzhby Ukr.SSR (for Vagin, Ray).
3. Institut gidrobiologii AN Ukr.SSR (for Almazov, Maystrenko).
4. Nauchno-issledovatel'skiy institut gidrotekhniki Komiteta
 vodnogo khozyaystva Rumynskoy Narodnoy Respubliki (for Bondar,
 Gederim, D'yakonu, Mitse,, Stenesku, V., Stenesku, S.).

RAY, N.I.
MIRONOV, V.P.; PEYCH, N.N., reaktor; RAY, N.I., redaktor; VORONTSOVA, L.M.,
tekhnicheskii redaktor

[Improving the quality of wood drying for the manufacture of skis
and furniture] Uluchshenie kachestva sushki drevesiny dlia luzhnogo
i mebel'nogo proizvodstva. Pod red. N.N.Peich. Moskva, Gos.izd-vo
mestnoi promyshl. RSFSR, 1957. 62 p. (MLWA 10:10)
(Lumber--Drying)

RAY, N.I., redaktor; BORISOV, A.S., tekhnicheskiiy redaktor

[Efficient workers in an accordion factory; work practice of the
Sovetskaya Armia Accordion Factory in Moscow] Ratsionalizatory
balaonoi fabriki; iz opyta raboty Moskovskoi balaonoi fabriki im.
Sovetskoi Armii. Moskva, Gos. izd-vo mestnoi promyshl. RSFSR, 1955
34 p. (MIRA 9:12)

(Accordions)

RAY, P.

Ray, P. and Goswami, B. K.

Compounds of hydrazine with metallic sulfites and nitrites

J. anorg. allgem. Chem., Vol. 161, 1928, pp. 329-338

Chem. Abs., Vol. 22, 2:1921

Metallic sulfites react in the presence of excess H_2SO_4 with NH_3 solns. (dil. or concd.) to form compds. of the type: $(\text{HSO}_3)_n \cdot x\text{NH}_3$. These react further with SO_2 to form more complex compds. such as $\text{CoSO}_3 \cdot (\text{NH}_3)_2 \cdot \text{SO}_2 \cdot 2\text{H}_2\text{O}$. The following compds. are prepd.--With Mn : $\text{MnSO}_3 \cdot \text{NH}_3 \cdot \text{H}_2\text{SO}_3$, acid to litmus, slightly sol. in H_2O , stable on boiling, and pptd. by NH_4OH as $\text{Mn}(\text{OH})_2$. With Co : From the normal sulfite $5\text{CoSO}_3 \cdot 9\text{NH}_3 \cdot 6\text{H}_2\text{O}$ (A), a light red powder, neutral to litmus, slightly sol. in H_2O , decompd. by boiling to $\text{Co}(\text{OH})_2$. From the bisulfite was obtained, on careful drying of the product $\text{CoSO}_3 \cdot 2\text{NH}_3 \cdot \text{H}_2\text{O}$ (B), red, cryst., alk. to litmus, decompd. on boiling to $\text{Co}(\text{OH})_2$. On treating A with SO_2 and pptn. with alc., $2\text{CoSO}_3 \cdot \text{NH}_3 \cdot 3\text{H}_2\text{O}$ is formed, cryst., neutral to litmus, stable on boiling. B, treated with SO_2 , gives a red cryst. product, $\text{CoSO}_3 \cdot (\text{NH}_3)_2 \cdot \text{SO}_2 \cdot 2\text{H}_2\text{O}$, very sol. in H_2O , sol. in NH_4OH . If B is repeatedly evapd. to dryness with H_2SO_4 , $\text{CoSO}_3 \cdot \text{NH}_3 \cdot \text{H}_2\text{SO}_3 \cdot \frac{1}{2}\text{H}_2\text{O}$ is formed, red, cryst., acid to litmus, sol. in H_2SO_4 , sol. in NH_4OH . With Ni : From the carbonate treated with SO_2 and NH_3 was obtained, $\text{NiSO}_3 \cdot 3\text{NH}_3 \cdot \text{H}_2\text{O}$, rose colored, alk. to litmus, insol. in H_2O , decompd. violently

Ray, F. and Goswami, B. K.

Chem. Abs., Vol. 22, 2:1921

by concd. HNO_3 . The bisulfite gives $\text{NiSO}_3 \cdot 2\text{H}_2\text{O}$ (C), blue, alk. to litmus, slightly sol. in H_2O . On treating C with SO_2 , $4\text{NiSO}_3 \cdot 3\text{N}_2\text{H}_4 \cdot 7\text{H}_2\text{O}$ is obtained, green cryst., neutral to litmus, insol. in H_2O . With Zn: The Bisulfite D, given $\text{ZnSO}_3 \cdot 2\text{N}_2\text{H}_4 \cdot 1\frac{1}{2}\text{H}_2\text{O}$ (D), white, alk. to litmus, slightly sol. in H_2O , sol. in NaOH. D, treated with SO_2 , yields $\text{ZnSO}_3 \cdot \text{N}_2\text{H}_4 \cdot \text{H}_2\text{SO}_3$, acid to litmus, sol. in NaOH. With Cd: From CdCO_3 treated with SO_2 and then with N_2H_4 was obtained $\text{CdSO}_3 \cdot \text{N}_2\text{H}_4$ (E), alk. to litmus, insol. in H_2O , sol. in dil. NH_4OH . E, treated with SO_2 , gives $\text{CdSO}_3 \cdot \text{N}_2\text{H}_4 \cdot \text{H}_2\text{SO}_3$, acid to litmus, sol. in dil. NH_4OH . Ni, H_2 forms similar compounds with the nitrates of Co, Ni and Cd, but not with Zn and Mn. The following are described: $2\text{Co}(\text{NO}_2)_2 \cdot 3\text{N}_2\text{H}_4$, dull red; $\text{Ni}(\text{NO}_2)_2 \cdot 2\text{N}_2\text{H}_4$, blue violet; $\text{Cd}(\text{NO}_2)_2 \cdot 2\text{N}_2\text{H}_4$, white. These decompose with detonation on heating, and explode when treated with concd. H_2SO_4 or HNO_3 . Dil. acid gives N_2 and N_2O . They are all alk. to litmus. H. Stoertz

Card 2 of 2 cards

RAY, P.

Ray, P. and Sarkar, P. H.

Application of Hexamethylenetetramine, Ammonia and Hydrazine as Microchemical Reagents.

Mikrochem. Zsch. 1930, pp. 243-253

Chem. Abstr., V. 25, pt. 2, 1931, pp. 3262-3263.

(CH₂)₆N in the presence of ferro- or ferri-cyanide or of nitroprusside yields with Mg salts well-defined cryst. ppts., the sensitivity being 0.0005-0.008 μ g; Ca and Li may be detected by the same reagents, but the sensitivity for Li is only 0.065 μ g. Mo (0.065 g) in H₂SO₄ soln. yields with (CH₂)₆N₄ characteristic white needles. Ag (0.065 g) in H₂SO₄ soln. yields with (CH₂)₆N₄ characteristic white needles. Ag (0.065 g) in H₂SO₄ soln. yields with (CH₂)₆N₄ characteristic white needles. Mn (0.02), Ni (0.15) and Co (0.02) yield with Na₂S₂O₈ and (CH₂)₆N₄ characteristic white or colored crystals. From a soln. of Cu (SCN)₂ gaseous NH₃ causes the copn. of blue needles of the compn. Cu(SCN)₂ · 2NH₃, the limit of sensitivity being 0.065 g of Cu; Zn and Cd yield with NH₄SCN and N₂H₄ colorless crystals of N(SCN)₂ · 2N₂H₄, the sensitivity limits being 0.15 and 0.065 μ g., resp.

BC

2-1

Quinoline and its derivatives. III. Determination of zinc in the presence of iron, chromium, arsenic, barium, and titanium. P. S. V. and E. C. V. (Moscow, 1955, 22, 75-77). — The quinoline tartrate solution is treated with the quinoline, the excess of HCl, removed by blowing through the solution at 50°, the solution cooled and filtered, and the washed up, dried at 100°, and weighed as $Zn(C_2H_3N_2O_2)_2 \cdot H_2O$. A. R. P.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

RAY, P. R.

Ray, P. R., and Gupta, P. N. D.

Double ferrocyanides of hydrazine and metals

Z. anorg. allgem. Chem., Vol. 140, 1924, pp. 81-92

Chem. Abs., Vol. 19, p. 619

Complex hydrazine ferrocyanides of Cu, Ni, Co, Fe and Zn analogous to complex K and NH_4 ferrocyanides were formed by addn. of excess hydrazine ferrocyanide soln. to aq. solns. of the metal salts. A no. of salts are acidic.

RAY, P. R.

Ray, P. R., and Sen, H. K.

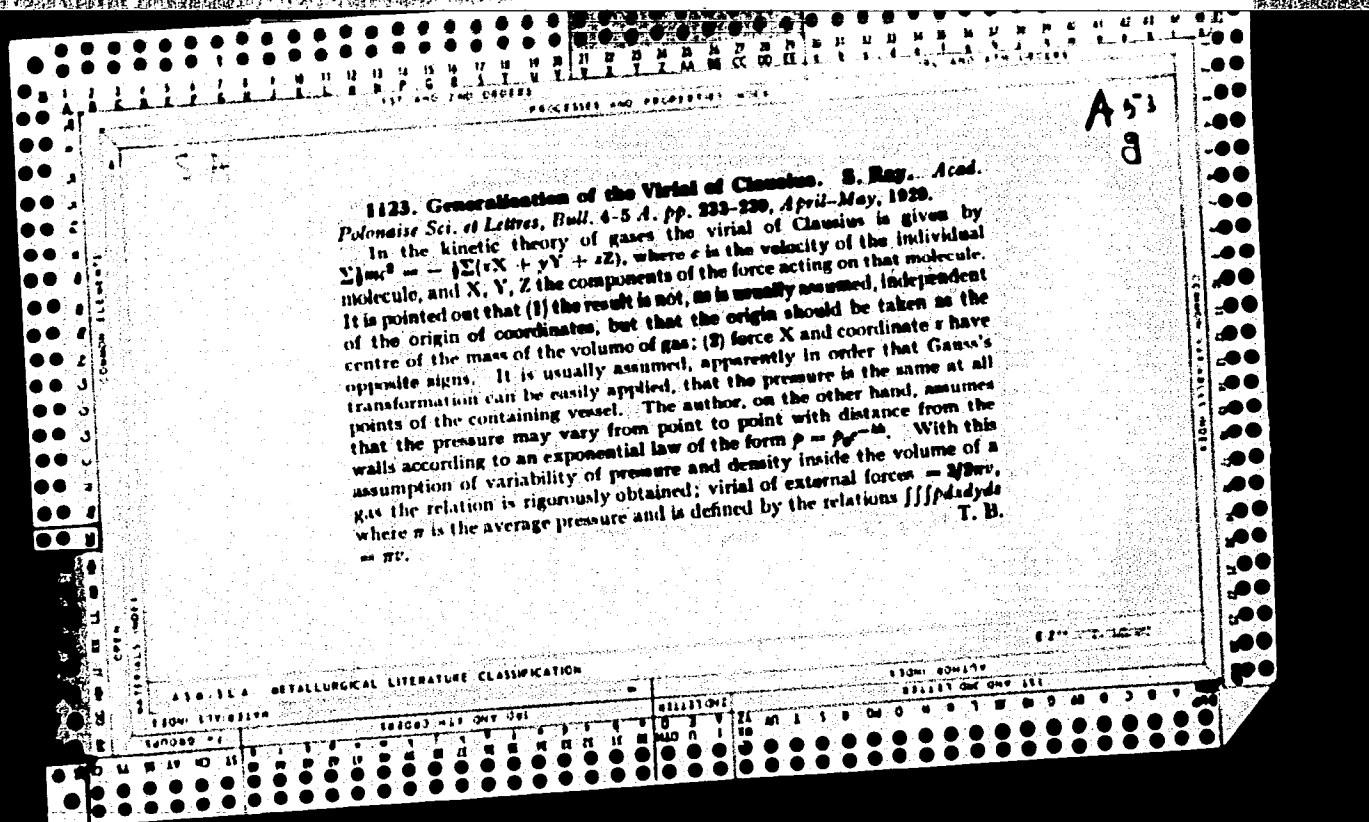
Action of Hydrazine and Hydroxylamine on Ferricyanides and New Methods for the Determination of Hydrazine and Ferricyanides.

Z. Anorg. Chem., Vol. 76, pp. 280-6

Chem. Abs., Vol. 6:3071

When a salt of NH_2NH_2 is added to an alk. soln. of $\text{K}_3\text{Fe}(\text{CN})_6$ a violent reaction occurs. The $\text{K}_3\text{Fe}(\text{CN})_6$ is reduced to $\text{K}_4\text{Fe}(\text{CN})_6$ and N_2 is evolved. The writers have taken advantage of this evolution of N_2 to determine NH_2NH_2 and also $\text{K}_3\text{Fe}(\text{CN})_6$. In either case the N_2 is measured in a nitrometer. If the % of NH_2NH_2 is sought a weighed portion of one of its salts is treated with an excess of $\text{K}_3\text{Fe}(\text{CN})_6$ in alk. soln. If the % of $\text{K}_3\text{Fe}(\text{CN})_6$ is desired, a weighed amt. is treated with an excess of a satd. alk. soln. of $\text{NH}_2\text{NH}_2\cdot\text{H}_2\text{SO}_4$.

1ST AND 2ND ORDERS										PROCESSES AND PROPERTIES INDEX										3RD AND 4TH ORDERS									
SA 1129. Back Wave in Wave Motion. S. Ray. Acad. Polonaise, Sci. et Lettres, Bull. 4-5a, pp. 229-232, April-May, 1929. In English. A brief discussion of anomalies which arise when simple treatments of wave-motion are applied to physical examples in which the speed of propagation depends upon the amplitude so that the wave-length depends upon the distance from the origin. W. H. Gk. A 53																													
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION																													
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RAYA, R.A. [Raja, R.], veterinarnyy vrach

Leptospirosis of swine in the Estonian S.S.R. Veterinariia 38
no.11:46-48 N '61 (MIRA 18:1)

1. Estonskaya respublikanskaya veterinarno-bakteriologicheskaya
laboratoriya.

MEDINSKIY, G.M.; RAYA, R.A. [Raja, R.]; TOKAREVICH, K.N., prof., nauchnyy
rukovoditel'

Data on the susceptibility of the dogs and cats in the Estonian
S.S.R. to Leptospira infection. Trudy Len.inst.epid.i mikrobiol.
20:171-174 '59. (MIRA 16:1)

(ESTONIA— DOGS—DISEASES AND PESTS)

(ESTONIA—CATS—DISEASES AND PESTS)
(LEPTOSPIROSIS)

RAYA, R. A. (Veterinary Doctor, Veterinary Bacteriological Laboratory of the Republic).

"Leptospirosis of Swine in the Estonian SSR".
Veterinariya vol. 38., no. 11., November 1961., p. 46

L 29349-66

ACC NR: AP5021508

(A)

SOURCE CODE: UR/0327/65/000/007/0034/0037

AUTHOR: Kokorin, O. Ya. (Candidate of technical sciences); Rayak, M. B.
(Engineer)

ORG: none

TITLE: Use of evaporation air-refrigeration in poultry-breeding industries

SOURCE: Vodosnabzheniye i sanitarnaya tekhnika, no. 7, 1965, 34-37

TOPIC TAGS: commercial animal, refrigerating system, animal husbandry

ABSTRACT: The authors describe a refrigeration system for keeping temperatures in poultry-breeding industries at an even year-round 22-25°C, and a humidity of 60-70%, which are believed to be best for healthy plumage and egg laying. There are 3 figures, 1 table and 5 references.

SUB CODE: 02 / SUBM DATE: none / SOV REF: 005

Card 1A CC

UDC: 697.9:631.2

RAYAK, M.B., inzh.

Climatic zones of the evaporative cooling of the air.
Vod.i san.tekh. no.4:29-35 Ap '65.

(MIRA 19:1)

KOKORIN, O.Ya., kand.tekhn.nauk; RAYAK, M.V., inzh.

Air cooling of mobile quarters on railroad cars. Stroi. truboprov.
8 no.1:6-7 Ja '63. (MIRA 16:5)

1. Nauchno-issledovatel'skiy institut sanitarnoy tekhniki Akademii
stroitel'stva i arkhitektury SSSR.
(Railroads--Cars--Heating and ventilation)

British Abst.

A I

Aug. 1953

Chemical Equilibria and Kinetics

Formation of carbon on the surface in the thermal decomposition of hydrocarbons. P. A. Tezner and I. S. Ryzhikov (U. R. S. S. R., 87, 821-824).— C_2H_2 , C_2H_4 , and C_2H_6 diluted with N_2 are passed at temp. from 700° to 1000° over lamp black or Pt. and the amounts of C deposited are determined by weighing. The rates of deposition of C from hydrocarbon- N_2 mixtures are proportional to the % of hydrocarbon in the mixture, the experimental points for the three hydrocarbons falling on the same straight line. H_2 formed during the decomposition reaction lowers the rate of C deposition and prevents the determination of the abs. value of the rate. Admixture of 50% of H_2 virtually stops the deposition of C. On Pt, porcelain, quartz, Al_2O_3 , and aluminosilicates the rate is slower than on a C surface and increases as the surface becomes coated with C. The formation of C has a high temp. coeff. and an activation energy of 70–100 kg.-cal. per g.-mol. The quantities of H_2 and C formed are in stoichiometric ratios. S. K. Lachowicz

RAYALO, G.Yu., Cand Tech Sci -- (diss) "Mass-transmission
cameras
in distillation with ~~xxxx~~ steam in film type ~~xxxxxxx~~."

Len 1958, 17 pp (Min of Higher Education USSR. Len Order of Labor
Red Banner Technological Inst im Leningrad. Chair of ^PProcesses
and Apparatuses.) 120 copies (KL, 42-58, 116)

- 43 -

RAYALO, G.Yu.; ROMANKOV, P.G.

Separation of binary mixtures by steam distillation in wetted-
wall columns. Trudy LTI no.46:147-161 '58. (MIRA 14:4)
(Distillation) (Mass transfer)

SEVULESKU, A. [Savulescu. A.]; g. Bukharest, Rumyniya; RAYANU, M.,
g. Bukharest, Rumyniya; RAYKU, K., g. Bukharest, Rumyniya;
MUSHNYAGE, V., g. Bukharest, Rumyniya

Determining the rot resistance of seeds and seedlings in corn
varieties, lines, and hybrids by the "cold" germination method.
Agrobiologia no.5:763-765 S-0 '61. (MIRA 14:10)
(Corn (Maize))--Varieties)
(Germination)

SAARMA, V.A. [Saarmaa, V.]; RAYASSAR, Y.S. [Rajasaar, Ö.]

Proteinogram in guinea pigs. Lab.delo 8 no.5:54-55 My '62.
(MIRA 15:12)

1. Kafedra gospiatal'noy terapii Tartuskogo gosudarstvennogo
universiteta.

(BLOOD PROTEINS) (GUINEA PIGS---PHYSIOLOGY)

RAYATSKAS, V.I., inzh.; ZYBIN, Yu.P., prof.

Size designation and basic dimensions of shoe lasts. Kozh.-obuv.
prom. 3 no.6:15-18 Ja '61. (MIRA 14:8)
(Boots and shoes)

RAYATSKAS, V.L., inzh.; ZYBIN, Yu.P., doktor tekhn.nauk, prof.

Plotting the theoretical development of the side surface of the last by means of stiff sheathing. Izv.vys.ucheb.zav.; tekhn.prom no.1:126-136 '63. (MIRA '6:3)

1. Moskovskiy tekhnologicheskoy institut legkoy promyshlennosti. Rekomendovana kafedroy tekhnologii izdeliy iz khoshi. (Shoe manufacture)

RAYATSKAS, V.I.; SHAL'CHYUTE, I.P.

Use of sodium silicate as thickener in LNT-a chloroprene latex.
Kozh.-obuv. prom. 6 no.7:24-26 J1 '64. (MIRA 17:8)

RAYATSKAS, V.L., inzh.; ZYBIN, Yu.P.

Designing patterns for flat and semiflat shoe uppers according to a stiff sheathing. *Izv.vys.ucheb.zav.; tekhn.prom. no.1:137-150 '63.*

MIRA 16:3)

1. Moskovskiy tekhnologicheskiy institut legkoy promyshlennosti.
Rekomendovana kafedroy tekhnologii izdeliy iz kozhi.
(Shoe manufacture)

L 52140-65 EPF(c)/EPR/EWP(j)/EWT(m)/T/EWP(v) Pc-4/Pr-4/Ps-4 RM/WW

ACCESSION NR: AP5015284

UR/0286/65/000/009/0066/0066

AUTHORS: Nurkse, Kh. Kh.-E.; Rayaveya, E. L.

TITLE: A method for obtaining low-viscosity resol cementing resins. Class 39,
No. 170656 15 28 B

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 9, 1965, 66

TOPIC TAGS: resin, resol resin, cement, shale, phenol, formaldehyde, ethyl alcohol

ABSTRACT: This Author Certificate presents a method for obtaining low-viscosity cementing resol resins based on the fraction of shale oil phenols, formaldehyde, and ethyl alcohol heating in the presence of a basic catalyst. To increase the stability of resins and to shorten the time of their synthesis, fractions of shale oil phenols are first condensed with formaldehyde. After the condensate is held until the free formaldehyde content in the finished resin is no higher than 2%, cold ethyl alcohol is added until the content of dry matter in the finished resin is no less than 40%.

ASSOCIATION: Institut slantsev SNKh ESSR (Institute of Shales, SNKh ESSR)

Card 1/2

L 52140-65

ACCESSION NR: AP5015284

SUBMITTED: 01Apr63

ENCL: 00

SUB CODE: 00, MT

NO REF SOV: 000

OTHER: 000

Card 2/2 *mb*

RAYAVEYE, E.L. [Rajaves, E.]; MOSKVITINA, K.A.; SIPOVSKIY, G.V.

Experience in the preparation of mastics with a base of shale
bitumen. Khim. i tekhn. gor. slan. i procd. ikh perer no.13:
190-197 '64. (MIRA 18:9)

NURKSE, Kh.Kh. [Nurkse, H.]; RAYAVEYE, E. [Rajavee, E]

Experience in the production and industrial use of KIS-1 adhesives.
Khim. i tekhn. gor. slan. i prod. ikh perer no.13:285-294 '64.
(MIRA 18:9)

RAYAVEYE, E.L. [Rajavee, E.]; KAL'BERG, A.O. [Kalborg, A.]

Obtaining higher alcohols. Khim. i tekhn. gor. slan. i prod. ikh
perer. no.11:331-336 '62. (MIRA 17:3)

METSIK, R.; TOMBERG, A.; RAYAVEE, E. [Rajavee, E.]

Factors influencing the composition of phenols extracted in a condensation system of gas-generator stations. Khim. i tekhn.gor.slav. i prod. ikh perer. no.12:161-168 '63. (MIRA 17:2)

METSIK, R.; TOMBERG, A.; RAYAVEE, E. [Rajavee, E.]; KIVIMAA, Kh. [Kivimaa, H.]

Investigating phenols extracted from semicoking shale tars by sodium carbonate aqueous solutions. Khim. i tekhn.gor.slán. i prod. ikh perer. no.12:181-192 '63. (MIRA 17:2)

KHYUSSE, I.Yu.; SHELOUMOV, V.V.; RAYAVEYE, E.L.; METSIK, R.E.; KIVIMAA, Kh.M.
[Kivimaa, H.]

Certain possibilities of increasing water soluble phenol resources.
Khim. i tekhn. gor. slan. i prod. ikh perer. no.11:230-235 '62.
(MIRA 17:3)

RAYAVEE, O.L.

Pharmacology of viprattox. Farm.i toks. 24 no.6:713-719 N-D '61.
(MIRA 15:11)

1. Kafedra farmakologii (zav. - prof. G.Ya.Kingisepp) Tartuskogo
gosudarstvennogo universiteta.
(VENOM--PHYSIOLOGICAL EFFECT)

RAYAVEE, O.I. [Rajavee, O.]; NURMAND, L.R.

Functional elimination and toxicity of barbital and pentothal sodium in hypothermia. Farm. i toks. 26 no.5:556-559 S-O '63.

(MIPA 17:8)

1. Kafedra farmakologii (zav. - doktor med. nauk prof. G.Ya. Kingisepp) Tartuskogo gosudarstvennogo universiteta.

RAYAVEE, O. L.

RAYAVEE, O. L. --"Comparative Effectiveness of Respiratory Analeptics in the Case of Poisoning with Barbamil and Sodium Pentothal. (Experimental Pharmacological Investigation)." (Dissertations for Degrees in Science and Engineering Defended at USSR, Higher Educational Institutions.) Tartu State U, Tartu, 1955

SO: Knizhnaya Letopis' No. 34, 20 August 1955

* For the Degree of Doctor of Medical Sciences

SEME NOV, S.S.; GUREVICH, B.Ye. Prinimali uchastiye: NIKOLAYEVA, A.I.,
tekhnik; RAYAVEYE, K.L. [Rajaväe, E.]; KAL'BERG, A.O. [Kalberg, A.]
inzh.

Production of higher alcohols from the natural gas gasoline of
tunnel kilns in a pilot plant. Trudy VNIIT no.9:91-98 '60.
(MIRA 13:11)

1. Kombinat Kokhtla-Yarve (for Rayaveye). 2. Institut slantsev
Estonskogo Soveta narodnogo Khosyaystva (for Kal'berg).
(Alcohols) (Oil shales)

TABLE 1. INDEX EVALUATION

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Material 2 Uralskogo gosobshchaniya po spiritoznaniyu, Sverdlovsk, 17-20 fevral' 1968 g. (Materials of the second Urals Conference on Spirituality, Held in Sverdlovsk, 1968) Sverdlovsk, Metallurgizdat, 1979, 206 p. Ktita sllp 10- seriy. 1,000 copies printed.

Sponsoring Agency: U.S. Army Medical Research Service, Research and Development Command, Fort Detrick, North Carolina 28601.

W. M. H. 1917

NOTE: This collection of articles is intended for general scientific information workers at ferrous and nonferrous metallurgical plants, and for laboratory personnel of the metal-working industry, geological and prospecting organizations, and similar scientific research laboratories.

CONTENTS: A collection of both formal and nonformal materials and alloys, as well as some nonmetals, polymers, and composites, are presented in this special issue. The materials are presented in the following order: (1) nonmetals, (2) polymers, (3) composites, (4) alloys, (5) nonformal materials, (6) formal materials, (7) nonmetals, (8) polymers, (9) composites, (10) alloys, (11) nonformal materials, (12) formal materials, (13) nonmetals, (14) polymers, (15) composites, (16) alloys, (17) nonformal materials, (18) formal materials, (19) nonmetals, (20) polymers, (21) composites, (22) alloys, (23) nonformal materials, (24) formal materials, (25) nonmetals, (26) polymers, (27) composites, (28) alloys, (29) nonformal materials, (30) formal materials, (31) nonmetals, (32) polymers, (33) composites, (34) alloys, (35) nonformal materials, (36) formal materials, (37) nonmetals, (38) polymers, (39) composites, (40) alloys, (41) nonformal materials, (42) formal materials, (43) nonmetals, (44) polymers, (45) composites, (46) alloys, (47) nonformal materials, (48) formal materials, (49) nonmetals, (50) polymers, (51) composites, (52) alloys, (53) nonformal 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Barrett, A. J. and H. M. Britton. Spectral Analysis of Silver-Copper Alloys from a Standard of Silver and of any Silver-Copper Alloy

Paronov, A. A., S. I. Chentsov, and V. D. Pogorzelski. Methods of Preparing Standards for the Spectral Analysis of Spontaneous Emission and Absorption 122

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Spectral Method of Analyzing Refined Fuels and
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Shit'ung, H. H., and T. Y. Tzeng. Some Problems in the Spectroscopic Analysis of Blasts, Ores, and Aluminosilicates. Saitama, M. S. V. P. Arakawa, Yo. Y. Tzeng, T. M. Shit'ung.

and T. A. Teyssie. Possibility of Using a Pulse Source for the Analysis of Slags and Agglomerates. *Journal of Analytical Chemistry*, 1966, 21, 106

Kyline, H. L., and V. L. Fritzsche-Davis, A spectral determination of
Oxides of Vanadium, Manganese, and Calcium in Agglomerate by the D.D.S.
Iron Method

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Balshat, M. A., and A. M. GOSTIN, Determination of Titanium in Nitrosometites and Slags by the Dilution Method 157

Sebelius, E. V. Spectral Analysis in the Refractories Industry 159

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 termination of Nitrogen and Carbon in the Presence of Oxide
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Biological Prospecting Party

Barukovich, Z. S., O. D. Prekel', and A. P. Korylov. Special
deviations of texture and deformation in sublayers of copper.

Studina, J. M. Spectral Analysis of Saline and Alkaline Soils Used in the Best Treatment of Steel Products 1965

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Specimens 197

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RAYBAUM, Ya.D.

U S S R .

✓ 6357 AEC-11-2194(p.C1-2)
ON THE ELECTRIC EROSION OF METALS IN A SPARK
DISCHARGE (condensation). Ya. (Ja.) D. Raybaum and
A. G. Krest'ianinov. Translated from Izvest. Akad.
Nauk S.S.S.R. Ser. Fiz. 18, 258(1954). 2p. Available from
Columbia Technical Translations, White Plains, N. Y.

① The atomization of various metals in spark discharges
was investigated. It was found that erosion is fairly stable
for each metal, depending primarily on the character of
the discharge. It was shown that the closest correlation
between amount of erosion and thermal constants exists
between ΔH , the difference in heat content of the solid and
gaseous states, and the characteristic temperature of the
metal. (B.J.H.)

of [unclear]

RAYBCHIKOV, D. I.

USSR (600)

Chemistry, Analytic

Complex compounds and their application in analytical chemistry., Zhur. anal.
khim., 7 No. 1, 1952.

Monthly List of Russian Accessions, Library of Congress, April 1952. UNCLASSIFIED.

POETOVA, V.T.; RAYBEKAS, M.F.

Distribution of erythrocytes in the blood as to their immune
resistance in a healthy person. Izv. SO AN SSSR no.12: Ser.
biol.-med. nauk no.3:127-132 '64. (MIRA 18:6)

1. Institut fiziki Sibirskogo otdeleniya AN SSSR, Krasnoyarsk.

S/080/62/035/011/004/011
D287/D307

AUTHORS: Marchenko, N.A., Gladkiy, I.N., and Rayber, E.S.

TITLE: Adhesion of electrolytic coatings to an electronegative base

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 11, 1962,
2445 - 2448

TEXT: A general method for the preparation of an electronegative base, comprising the activation of the surface, is described. The coatings were applied on titanium, aluminum and their alloys. Activation of the surface (up to the time of formation of the metallic deposit) is recommended as the attraction between the atoms of the base and of the coating will reach their highest value in this case. The magnitude of the active surface was calculated by the oscillographic method and by plotting polarization curves. Experiments were also carried out on the corrosion of titanium in H_2SO_4 solutions of varying concentration and at different temperatures to determine optimum conditions for the activation of Ti. The degree of activity

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Adhesion of electrolytic coatings ...

S/080/62/035/011/004/011
D287/D307

was controlled by determining the potentials oscillographically and by using a cathode voltmeter. The magnitude of the active surface is also influenced by the initial current density and increases with increasing current densities. Washing before the deposition of the coating should be omitted as this passivates the surface. Current impulses should be applied during the initial stages of the coating process. The authors have also carried out experiments on the chromium-plating of cylinders ABC (DVS), made of the alloy AL 10B (AL 10V), when $D_{\alpha} = 10 \text{ a/dm}^2$. A porous oxide layer of granular structure was formed. There are 4 figures and 2 tables. ✓

ASSOCIATION: Khar'kovskiy politekhnicheskii institut imeni V.I. Lenina (Khar'kov Polytechnic Institute imeni V.I. Lenin)

SUBMITTED: July 13, 1961

Card 2/2

ACCESSION NR: AR4014554

S/0276/63/000/012/B089/B090

SOURCE: RZh. Tekhnologiya mashinostroyeniya, Abs. 12B599

AUTHOR: Gladkiy, I. N.; Rayber, Z. S.

TITLE: Copper plating of titanium

CITED SOURCE: Tr. Khar'kovsk. politekhn. in-ta, v. 45, 1963, 59-63

TOPIC TAGS: plating, metal plating, copper plating, copper plating titanium, plating titanium, electroplating, electrolytic plating, titanium electroplating

TRANSLATION: The results are given of research on working out the technological process of a system of copper plating on titanium which has a good quality of cohesion. The effect of preparatory operations and deposition conditions on the degree of activity of the titanium base and its cohesion to the plating is studied by the oscillograph method. The following technological system of copper plating is recommended: degreasing in acetone, alcohol, etc., air drying, pickling in a 5% solution of sulfuric acid at a temperature of 80-90°, coppering in a sulfuric acid electrolyte, washing in cold running water, drying at a

Card 1/2

ACCESSION NR: AR4014554

temperature of 150-200°, heat treatment at a temperature of 700-800°C for 5-10 minutes.

DATE ACQ: 09Jan64

SUB CODE: ML

ENCL: 00

Cord 2/2

MARCHENKO, N.A.; RAYBER, Z.S.; LIPKO, S.K.; OS'MAKOVA, V.T.; KRYMER, S.Ye.;
LOMEKHOV, A.S.; STREL'NIKOVA, N.P.; KORCHEMNAYA, Ye.K.; NAUMOVA, V.I.

Exchange of experience. Zav.lab. 28 no.10:1192-1193 '62. (MIRA 15:10)

1. Khar'kovskiy politekhnicheskii institut imeni Lenina (for Marchenko, Rayber, Lipko). 2. Severnyy nikel'nyy kombinat (for Kreymer, Lomekhov). 3. Noril'skiy gorno-metallurgicheskii kombinat imeni A.P. Zavenyagina (for Strel'nikova). 4. Institut geokhimii i analiticheskoy khimii imeni V.I. Vernadskogo (for Korchemnaya, Naumova).

(Chemistry, Analytical)

MARCHENKO, N.A.; GLADKIY, I.N.; RAYBER, Z.S.

Adhesion of galvanic coatings to an electronegative base. Zhur.prikl.
khim. 35 no.11:2445-2449 N '62. (MIRA 15:12)

1. Khar'kovskiy politekhnicheskii institut imeni V.I.Lenina.
(Protective coatings) (Electroplating) (Adhesion)

MARCHENKO, N.A., kand. tekhn. nauk; RAYDER, Z.S., inzh.; KAZATSKAYA, Ye.N., inzh.; ZHUKOVA, V.I., red.; FOMICHEV, A.G., red. izd-va; BOL'SHAKOV, V.A., tekhn. red.

[Applying copper coatings from an ammonia electrolyte] Nanesenie mednogo pokrytiia iz ammiachnogo elektrolita. Leningrad, 1961. 21 p. (Leningradskii dom nauchno-tekhnicheskoi propagandy. Obmen peredovym opytom. Seriia: Zashchitnye pokrytiia, no.13) (MIRA 15:10)

(Copper plating)

RAYBININ, A.A.; KONOVALOVA, N.Ye.

Some syntheses based on glycyrrhetic acid. Zhur.ob.khim.
32 no.2:644-646 F '62. (MIRA 15:2)

1. Leningradskiy gosudarstvennyy universitet.
(Glycyrrhetic acid)

RAYBMAN, N.S. (Moskva); TEREKHIN, A.T. (Moskva)

Dispersion methods of random functions and the application
to the study of nonlinear control objects. Avtom. i telemek.
26 no.3:500-509 Mr '65. (MIRA 18:6)

RAYEMAN, N. S., DEGTYAREV, I. L.

Machinery - Trade and Manufacture

Analysis and control of the process in the automatic and cold-upsetting shops.
Vest. mash. 31 no 12, 1951.

Monthly List of Russian Accessions, Library of Congress. September 1952. Unclassified.

RAYBMAN, N.S., dotsent, kandidat tekhnicheskikh nauk; KOTEL'NIKOV, B.P.,
inzhener.

Precision characteristics and statistical methods of control in an
electroplating shop. Vest.mash.34 no.4:85-89 Ap '54. (MIRA 7:5)
(Electroplating) (Production control)

Ray B. M. V. S.

- b) A. P. Alekseyev, A. I. Lur'y, P. V. P. - Experiences in the Application of Electronic Computers for a Solution of the Balancing Problem.
 - 5) A. Kaplan - Prospects for the Use of Linear Programming in the Over-all Planning of Mining Stock Utilization.
 - 6) The Gerasimov - A Program for the Solution of Transport Problems on an Electronic Computer Involving Methods of Approximation by Means of Synthetically Optimal Plans.
 - 7) A. P. Vost'yanov - An Optimal Freight Balance Plan for the USSR Coal Industry.
6. Planning Session - 17 December 1959, 1000 hours
V. The Coal-Balancing-Type Balance
- 2) V. S. Buzhikov - Theoretical Problems of the Coal-Balancing-Type Balance.
 - 3) A. M. Burt - The Coal-Balancing-Type Balance and the Planning of National Economy.
 - 3) The I. Chernykh - Experience in Working Up an Input-Output Balance for an Economic-Administrative Region.
 - 4) V. S. Buzhikov - Some Planning Calculations Based on the Input-Output Balance of an Economic Region.
 - 5) V. V. Buzhikov - A Regional Model of Agricultural Production.
 - 6) V. I. Malvin, A. I. Klyashko - The Future and Special Features of Total Input.
6. Planning Session - 17 December 1959, 1600 hours
VI. Mathematical Statistics
- 2) The M. P. Kostikov - Statistical Methods for Determining the Average Prices of Goods.
 - 3) V. V. Buzhikov - The Consumption Elasticity Indicator and Its Practical Importance in Studying the Future Level of Living.
 - 3) P. Mal'nevskiy - Analytical Methods of Studying the Dependence of Consumption on Income.
 - 4) S. S. Kozlov, P. V. P. - Statistical Methods - Statistics and the Use of Mathematical Methods in Economic Research.
 - 5) V. V. Buzhikov - Research on Technical and Economic Laws in Interfering Interference with the Aid of Correlation Theory.
 - 6) S. S. Kozlov - Application of Correlation Methods in the Analysis of Market Operating Costs.

report submitted at the Soviet Conference on Problems in the Application of Mathematical Methods in Economic Research, Leningrad, 16-21 January 1960.

RAYBMAN, N. S.

PHASE I BOOK EXPLOITATION SOV/5856

Leonov, Yuriy Petrovich, Sergey Yakovlevich Rayevskiy, and Naum
Samoylovich Raybman

Pomoshchnik avtomatiki; statisticheskaya dinamika v avtomatike
(Aid in Automation; Statistical Dynamics in Automation) Moscow,
Izd-vo AN SSSR, 1961. 116 p. (Series: Akademiya nauk SSSR.
Nauchno-populyarnaya seriya). 8000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR.

Ed. of Publishing House: Ye. I. Levit; Tech. Ed.: O. M. Gus'kova.

PURPOSE : This book is intended for students, engineers, technicians,
and those interested in the application of statistical methods
to automatic control.

COVERAGE: Fundamental concepts of probability and information theory
and examples of their application in science and technology are
presented. Control systems which are optimal in a statistical

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Aid in Automation; Statistical (Cont.)

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sense are discussed, along with the construction of mathematical analogs for relationships between various quantities. Ways of using statistical methods for the investigation of control systems are indicated. The application of statistical methods for analyzing and evaluating the accuracy of individual automated processes is described. No personalities are mentioned. There are 12 references, all Soviet (including 2 translations).

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1/16/62

ABDRASHITOV, Rasim Mubarakshevich, kand. tekhn. nauk; GREBENNIKOV, Nikolay Ivanovich, inzh.; RAYBMAN, Naum Samoylovich, kand. tekhn. nauk; MIL'GRAM, Yu.G., doktor tekhn. nauk, retsenzent; YELISEYEV, M.S., red. izd-va; UVAROVA, A.F., tekhn. red.

[Precision analysis in the manufacture of calculating machines; mechanical units and devices of mechanical and electronic calculating machines] Tochnostnye raschety v schetnom mashinostroenii; mekhanicheskie uzly i ustroystva mekhanicheskikh i elektronnykh vychislitel'nykh mashin. Moskva, Mashgiz, 1961. 252 p. (MIRA 14:10)
(Calculating machines) (Electronic calculating machines)

S/024/61/000/001/004/014
E197/E435

AUTHOR: Raybman, N.S. (Moscow)

TITLE: Correlation methods for the determination of
approximate characteristics of automatic production
lines

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh
nauk, Energetika i avtomatika, 1961, No.1, pp.110-123

TEXT: In a paper presented in 1959 at the Third All Union
Conference on Automation of Production Processes, N.A. Borodachev
formulated some of the problems of applying the theory of random
processes for describing the relations governing the operation of
automatic production lines. In this paper correlation methods
for the determination of approximate characteristics of automatic
production lines are considered assuming a linear dependence of the
output upon the input for each of the production processes.
Problems of the determination of the optimum accuracy for each of
the constituent operations of the automatic line are also
considered. Accuracy in the production of components, sub-
assemblies and finished assemblies is among the main factors
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Correlation methods for ...

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determining the productivity, quality, reliability and cost. The accuracy is considered in the light of statistical analysis. Hitherto, accuracy was mainly examined in relation to individual processes by establishing evaluations of the mathematical expectation, scatter and their variation in time. The effects of individual factors on regularities in the progress of a production process on automatic machines have been established in recent years. For automatic production lines, it is necessary to establish also the features of inter-action between the several processes. Correlation analysis has recently been applied to simple production chains. The theory of random functions and its applications in automatic control systems is a promising approach to the evaluation of the transfer characteristics of automatic production lines. In a line consisting of a single process, the input and output qualities are each described by the mathematical expectation, the scatter and the distribution law of a quality parameter. When the relation between input and output is linear and the density of distribution is normal at the input, it is also normal at the output. Correlation analysis is used to derive approximate relations between input and output. A so-called Card 2/4 ✓

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"regression coefficient" is defined which characterizes the transfer of an input error to the output. When this coefficient is zero (namely when the correlation coefficient between input and output is zero) the input errors are fully corrected in the given operation. When the regression coefficient is unity, the operation leaves the input error untouched. On the other hand, the errors which are caused by the process itself are defined by two other coefficients of which one is the systematic error and can be adjusted either by the initial dimensions of the tool (form cutting, blanking, pressure die casting, hot and cold stamping or extrusion) or by re-setting (turning, milling, grinding and others). The second coefficient defines the random errors of the process. Both coefficients can be determined from measurements of the components produced. These relations between input and output are applied first to two operations in series and then to an arbitrary number. The values of the "regression coefficient" are the transfer characteristics for the links in the system. In inertialess systems without lag, these coefficients are evaluations of the operator by which the input is transformed into the output. The effect of a time lag is

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discussed. It is shown how cases of nonlinear relationship between input and output can be treated. The problem of designing an automatic production line for minimum cost is discussed. An example is given, chosen from one of the automatic production lines of roller bearings in the I-yy Gosudarstvennyy podshipnikovyy zavod (First National Bearing Factory in Moscow) where the measurements were carried out. The results were utilized of about 200 measurements carried out in the Laboratoriya tochnosti (Accuracy Laboratory) IMASH AS USSR. Acknowledgments are expressed to V.S.Pugachev and Ya.I.Lukomskiy for their advice. There are 3 figures, 2 tables and 8 Soviet references. ✓

SUBMITTED: September 20, 1960

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S/103/61/022/011/005/014
D201/D306

16,4000 (1329, 1344, 1031)

AUTHORS: Rayevskiy, S. Ya., and Raybman, N. S. (Moscow)

TITLE: Applying statistical dynamics methods to designing characteristics of some automation objects

PERIODICAL: Avtomatika i telemekhanika, v. 22, no. 11, 1961, 1466-1474

TEXT: In the present article the authors consider the general problems of the theory of determining characteristics of the object to be controlled. This theory is then explicitly considered as applied to a certain class of technological processes and finally applied for determining one of the characteristics of automatic bearing production lines. Let the input to the controlled object be a certain random process $X(t)$ resulting in a random process $Y(t)$ at the output. $X(t)$ and $Y(t)$ can be measured, the results of their measurements determining the object characteristic, which is defined as a certain operator. Hence

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$$A_t X(s) = Y(t) \quad (1.1)$$

where A_t is the object operator, the subscript t indicating that the operator depends on the variable t . Since no data are assumed known about the operator, it is assumed to be random and hence it is enough to determine its sample value A_t^* . The sample operator determines the operator A_t if its value is near to the real value of the operator itself, this value being determined from a certain criterium, which condition is equivalent to the requirement that a random function

$$Y^*(t) = A_t^* X(s) \quad (1.2)$$

be nearly equal to the random function $Y(t)$. Such problems are solved in statistical dynamics by V. S. Pugachev (Ref. 1: Teoriya

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sluchaynykh funktsiy i yeye primeniye k zadacham avtomaticheskogo upravleniya (Theory of Random Functions and its Application to the Problems of Automatic Control), Fizmatgiz, 1960) by the construction, according to the chosen criterium, of a certain function

$\rho[Y(t), Y^*(t)]$ depending on $Y(t)$ and $Y^*(t)$, the mathematical expectation of which is made minimum, i.e.

$$M\rho[Y(t), Y^*(t)] = \min \quad (1.3)$$

A typical object in practice is a technological chain of consecutive operations in machine engineering, instrument production, metallurgy etc. or an automatic production line. Let such a chain have n series connected units, having a certain random factor $X_0(t)$ affecting the input of the first unit. $X_0(t)$ will result in a factor $X_1(t)$ at the input of the second unit, $X_1(t)$ will result in an $X_2(t)$ at the input of the third unit etc. Hence

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$$D[X_n(t)] = D[A_{tk}^* X_{k-1}(s)] + D[\epsilon_k(t)] \quad (k=1, 2, \dots, n-1, n) \quad (2.2)$$

may be obtained from which

$$\sigma_n^2 = \sum_{k=1}^n D_k[X_n(t)] = \sum_{k=1}^n D[A_{tk}^* X_{k-1}(s)] + \sum_{k=1}^n D[\epsilon_k(t)] \quad (2.3)$$

The first sum in the R.H.S. of (2.3) takes into account the effect of errors at inputs $X_k(t)$ on the output parameter $X_n(t)$ and the second sum - the total effect of random disturbances within the chain itself. The evaluation of these two sums is made under the following assumptions, often met in practice: 1) All errors $X_k(t)$ ($k = 1, 2, \dots, n-1, n$) are delta-correlated, i.e.

$$K_{xx}^m(t_1, t_2) = \sigma_m^2 \delta(t_1 - t_2) \quad (2.4)$$

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2) all units in the chain are linear, i.e.

$$A_{tm} X_m(s) = \int_0^T W_m(t, s) X_m(s) ds \quad (2.5)$$

Hence, for constant coefficients of mutual correlation

$$D_1 = \sum_{k=1}^n \frac{1}{\sigma_{k-1}^2} [K_{xy}^{(k-1)}]^2 \quad (2.9)$$

and

$$D(\mathcal{E}_n) = D_k[X_n(s)] = \sigma_n^2 [r_{xy}^{(k-1)}]^2 \quad (2.10)$$

Application of the above method makes it possible to determine the
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value of D_{in} at the output of an automatic production line from the values of D_{1k} of every one of the constituent processes at the line:

$$D_{in} = \sum_{i=1}^n A_{tk}^* K_{X_k} X_n \quad (2.13)$$

where A_{tk}^* - the sample values of the operators of each of the processes. As an example the authors consider determination of the characteristics of the automatic production line of the first State Bearing Manufacturing Factory in finishing the outer ring of roller bearing type 7815K1. The production line characteristics were determined from the results of measurements carried out by the Laboratory of the Institute of the Science of Machines *ИМАШ* of the AS USSR and all data presented by M. I. Kochenov and V. I. Sergeyev.

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There are 6 figures, 2 tables and 7 Soviet-bloc references.

SUBMITTED: January 20, 1961

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Transactions of the Sixth Conference (Cont.)

47. Rayevskiy, S. Ya. Analogue of A. Ya. Khinchin's Theorem on the Spectral Representation of the Correlation Function for Nonstationary Random Processes 239
48. Raybman, N. S. Correlation Methods for Determining the Approximate Characteristics of Automatic Lines 245
49. Sveshnikov, A. A. Probability Methods for Investigating the Swell of the Sea and the Rolling of a Ship 251
50. Tempel'man, A. A. Ergodic Properties of Homogeneous Random Fields Over Groups 253
51. Timofeyev, D. V., and A. S. Frolov. Application of a Method for Statistical Tests to the Calculation of Certain Regimes of Electric Systems 257

Transactions of the 6th Conf. on Probability Theory and Mathematical Statistics and of the Symposium on Distributions in Infinite-Dimensional Spaces held in Vil'nyus, 5-10 Sep '60. Vil'nyus Gospolitizdat Lit SSR, 1962. 493 p. 2500 copies printed

S/024/62/000/002/004/012
E140/E155

AUTHOR: Raybman, N.S. (Moscow)

TITLE: Correlation methods of determining the approximate characteristics of multidimensional processes in automatic production lines

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Energetika i avtomatika, no.2, 1962, 72-91

TEXT: The article considers correlation methods of determining characteristics of multi-input-output processes taking the microstructure into account. The processes are assumed to be linear and the error is delta-correlated. Among the factors which may be treated by the method are cutter wear on automatic lathes, wear of dies and punches in cold stamping operations, grinders, rolls, etc., variations of temperature in heat treatment, etc. By linear transformations the regression equation is obtained. The analysis proceeds from the simple case, of assuming a single external factor to be predominant, Card 1/3